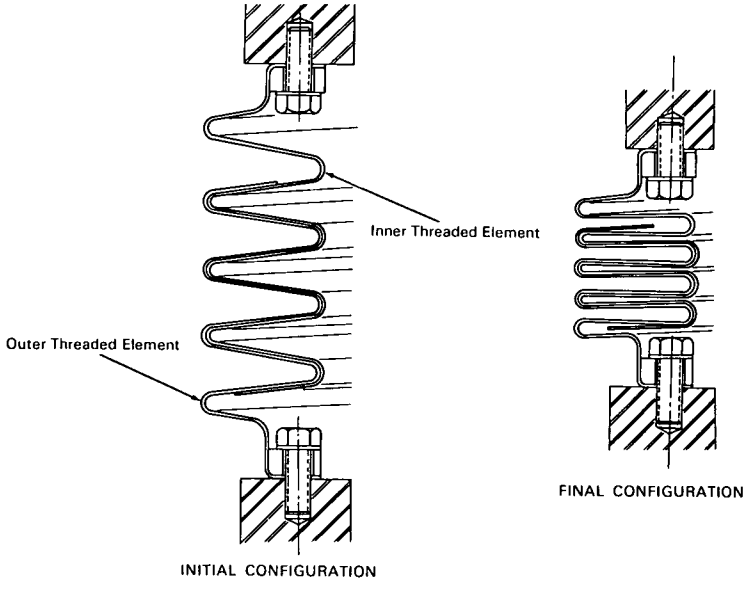
NASA TECH BRIEF

Seal Allows Blind Assembly and Thermal Expansion of Components



The problem: A seal between two coaxial flow regions must withstand large temperature changes and be demountable. Blind assembly is an additional requirement.

The solution: A seal made of two concentric cylindrical elements, one threaded internally, the other externally.

How it's done: A cylindrical threaded element is attached to each side of the system interface. During assembly the elements are threaded together as far as possible. The two faces of the system joint are then brought together as close as possible to complete the seal. During fastening, the mating threaded elements distort and form many lines of contact perpendicular to the leakage path. The threaded elements will normally size during assembly, making this a one-time device which must be replaced rather than reused if disassembly is required.

Notes:

1. Selection of materials with appropriate coefficients of expansion will assure seal integrity over a wide range of temperatures.
2. This design should accommodate a considerable range of thermal activity in the structure interface.
3. Inquiries concerning this innovation may be directed to:

   NASA Space Nuclear Propulsion Office
   Technology Utilization Branch
   U.S. Atomic Energy Commission Bldg.
   Germantown, Maryland
   Reference: B65-10053

(continued overleaf)

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: Westinghouse Electric Corporation under contract to Space Nuclear Propulsion Office (NU-0005)